

CLAIMS

What I claim is:

- 1 1. A composition for containing metal ions in an electronic device,
2 comprising:
3 an immobile particle; and
4 a chelating agent which is bonded to said immobile particle.

- 1 2. The composition according to claim 1, wherein said chelating agent
2 complexes with metal ions that leach out of metal sources within said electronic
3 device.

- 1 3. The composition according to claim 1, wherein said chelating agent
2 comprises one of an oxylate, ethylenediamine and ethylenediamine tetraacetate.

- 1 4. An electronic device having an integrated circuit with a composition for
2 containing metal ions, said composition comprising:
3 an immobile particle; and
4 a chelating agent which is bonded to said immobile particle.

- 1 5. The electronic device according to claim 4, wherein said composition is
2 contained within a scratch coat covering an active surface of said integrated
3 circuit.

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1 6. The electronic device according to claim 4, further comprising:
2 a package, to which said integrated circuit is bonded.

1 7. The electronic device according to claim 6, wherein said composition is
2 contained within an encapsulant which is deposited over substantially an entire
3 surface of said integrated circuit and between said integrated circuit and said
4 package.

1 8. The electronic device according to claim 6, wherein said composition is
2 contained within an underfill which is deposited between said integrated circuit
3 and said package.

1 9. The electronic device according to claim 6, wherein said package
2 comprises an organic package and wherein said composition is contained within
3 said organic package.

1 10. The electronic device according to claim 6, further comprising:
2 a printed circuit board to which said package is bonded.

1 11. The electronic device according to claim 10, wherein said composition is
2 contained within an underfill which is deposited between said package and said
3 printed circuit board.

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1 12. The electronic device according to claim 10, wherein said composition is
2 contained within said printed circuit board.

1 13. The electronic device according to claim 10, wherein said composition is
2 contained within a conformal coating which is deposited over said integrated
3 circuit, said package and said printed circuit board.

1 14. A method of containing metals in an electronic product comprising:
2 bonding a chelating agent to an immobile particle to form a composite;
3 depositing said composite in close proximity to a metal source; and
4 using said chelating agent to capture metal ions which leach out of said
5 metal source.

1 15. A composition consisting essentially of:
2 a chemically active moiety for chemically bonding with metal ions; and
3 a polymer which serves as an insoluble and immobile phase, to which said
4 chemically active moiety is bonded.

1 16. The composition according to claim 15, wherein said chemically active
2 moiety comprises a chelating agent.

1 17. The composition according to claim 15, wherein said metal ions comprise
2 a variety of metal ions.

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1 18. The composition according to claim 15, wherein said metal ions comprise
2 specific metal ions.

1 19. The composition according to claim 15, wherein said metals comprise one
2 of lead, antimony, bismuth and indium.

1 20. The composition according to claim 15, wherein said chelating agent
2 comprises a plurality of chelating agents.

1 21. The composition according to claim 15, wherein said composition is
2 contained within a dielectric phase of an electronic device.

1 22. The composition according to claim 15, wherein said composition is
2 contained within an active surface protectant for an integrated circuit.

1 23. The composition according to claim 22, wherein said active surface
2 protectant comprises a scratch coat protectant.

1 24. The composition according to claim 15, wherein said composition is
2 contained within a die/chip protectant.

1 25. The composition according to claim 24, wherein said die/chip protectant
2 comprises an encapsulant dielectric.

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1 26. The composition according to claim 15, wherein said composition is
2 contained within an underfill dielectric.

1 27. The composition according to claim 26, wherein said underfill dielectric is
2 used in flip chip bonding.

1 28. The composition according to claim 15, wherein said composition is
2 contained within an integrated circuit package organic dielectric.

1 29. The composition according to claim 28, wherein said organic dielectric
2 comprises one of epoxy, polyimide, polytetrafluoroethylene laminate materials
3 and epoxy molding compounds.

1 30. The composition according to claim 15, wherein said composition is
2 contained within a package level underfill dielectric.

1 31. The composition according to claim 30, wherein said package level
2 underfill dielectric comprises BGA underfill material.

1 32. The composition according to claim 15, wherein said composition is
2 contained within a printed circuit board dielectric material.

1 33. The composition according to claim 32, wherein said printed circuit board

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2 dielectric material comprises epoxy, polyimide, polytetrafluoroethylene laminate
3 materials and epoxy molding compounds.

1 34. The composition according to claim 15, wherein said composition is
2 contained within a conformal coating dielectric.

1 35. The composition according to claim 34, wherein said conformal coating
2 dielectric comprises an immersion coating for an electronic device.

1 36. The composition according to claim 15, wherein said chemically active
2 moiety comprises one of an oxalate, ethylenediamine and ethylenediamine
3 tetraacetate.

1 37. The composition according to claim 15, wherein said chemically active
2 moiety comprises more than one of an oxalate, ethylenediamine and
3 ethylenediamine tetraacetate.